

The Amateur in You, Part 2

What have you been pondering?



Setting up and operating FT8 on an Icom IC-7300



Many hams have asked how to set up and operate FT8, and there are numerous videos, web pages, and other helps on how to get that done. Still, I felt it was worthwhile to create a written reference for the process, because enough people have asked for one that included links, and walked the operator from absolute start to making contacts.

But there's a catch: this discussion should ideally explain how to do this for *any transceiver*, but if I attempted that, this article would have ended up being quite lengthy. So, I'm going to focus on one, the Icom IC-7300, which makes it easy because of its built-in TNC / sound card. In fact, there are many modern transceivers with this built-in device, so it's not unreasonable to expect that you too might have one of them. I've written a separate article [for the Yaesu FT-991A](#).

One caveat I need to state is that, although the links I've provided are valid at the time of this writing, some of them point to retail locations that could change without much notice. Hopefully, I've described enough detail to help you find the parts or the information without their links. And speaking of details,

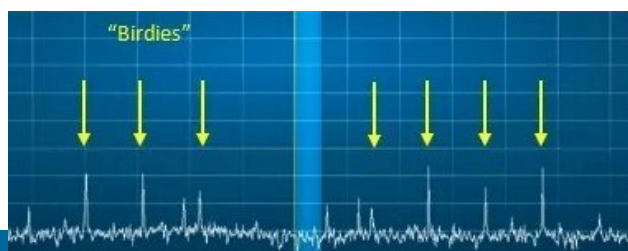
this little guide will not explain *every detail*.

Gather the pieces

You'll need to collect a few things, to set up your FT8 station, starting with a computer running Windows 7 or later. In this example, I'm using my HP ProBook laptop running 64-bit Microsoft Windows 10 Pro with 12 GB of memory. I only provide this so you'll know what I'm using.

Next, you'll need an amateur station made from an [Icom IC-7300 transceiver](#), plus an accompanying [power supply](#), [HF antenna](#), and [coaxial cable](#). The tuner is built into the transceiver, so no need to get another.

Finally, you'll need to purchase a high-quality [USB type A/B cable](#). An unshielded or otherwise cheaply made USB cable can result in your receiver signals mixing with harmonics, affectionately known as *birdies*.



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Pair your computer with the transceiver

First, make sure your USB cable is recognized by both your computer and the IC-7300. Turn on the IC-7300 and plug the USB type B end of the cable into the rear of the IC-7300. Next, turn



USB type B plug



USB port (socket) in the rear of the IC-7300

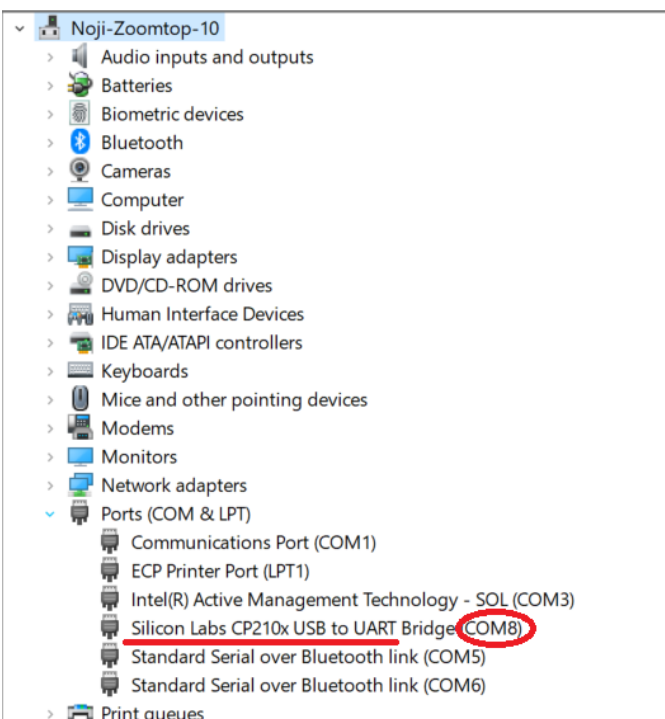
on your computer, and once Windows is fully up and running, plug the other end of the cable into your computer USB port.

Press <Windows-x> on your keyboard. (While holding the Windows key, press x)



Click Device Manager. In the Device Manager window, click the little greater-than sign (>) in front of "Ports (COM & LPT)" to display the COM port numbers. The IC-7300 should appear under the Ports list as "Silicon Labs CP210x USB to UART Bridge" or similar. If you see this line, but not in the Ports (COM & LPT) list, you'll need to install the Icom IC-7300 USB driver, which you can download from the [Icom website](http://icominc.com).

Record (write down or remember) the COM port number listed after the driver name. In my case it's COM8.



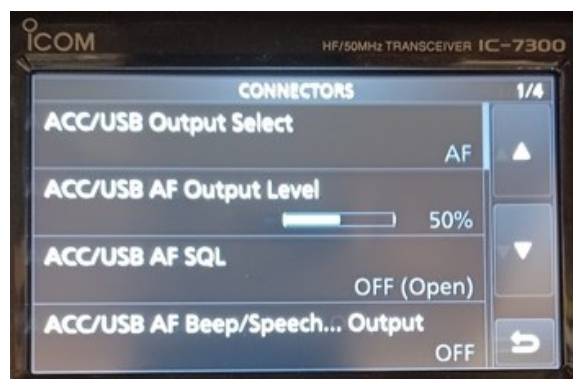
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Set up the transceiver

Ensure an antenna feed line (coaxial cable) is plugged into the antenna connector on the rear of the IC-7300, and that the other end of the feed line is connected to an antenna. On the IC-7300 press the **MENU** button, then tap **SET**, then **Connectors**. Leave most of the settings at their defaults, which should be

- ACC/USB Output Select = AF
- ACC/USB Output Level = 50%
- ACC/USB AF SQL = OFF (Open)
- ACC/USB AF Beep/Speech... Output = OFF
- ACC/USB IF Output Level = 50%
- ACC MOD Level = 50%
- USB MOD Level = 50%
- DATA OFF MOD = MIC,ACC



Scroll down and tap **DATA MOD**, and select **USB**

Tap **CI-V** and ensure the following settings show

- CI-V Baud Rate = 19200
- CI-V Address = 94h
- CI-V Transceive = ON
- CI-V USB->Remote Transceive Address = 00h
- CI-V Output (for ANT) = OFF
- CI-V USB Port = Unlink from [REMOTE]
- CI-V USB Baud Rate = 115200
- CI-V USB Echo Back = ON

Tap the **Return** icon twice to return to the radio window:



Return icon



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Set up the software

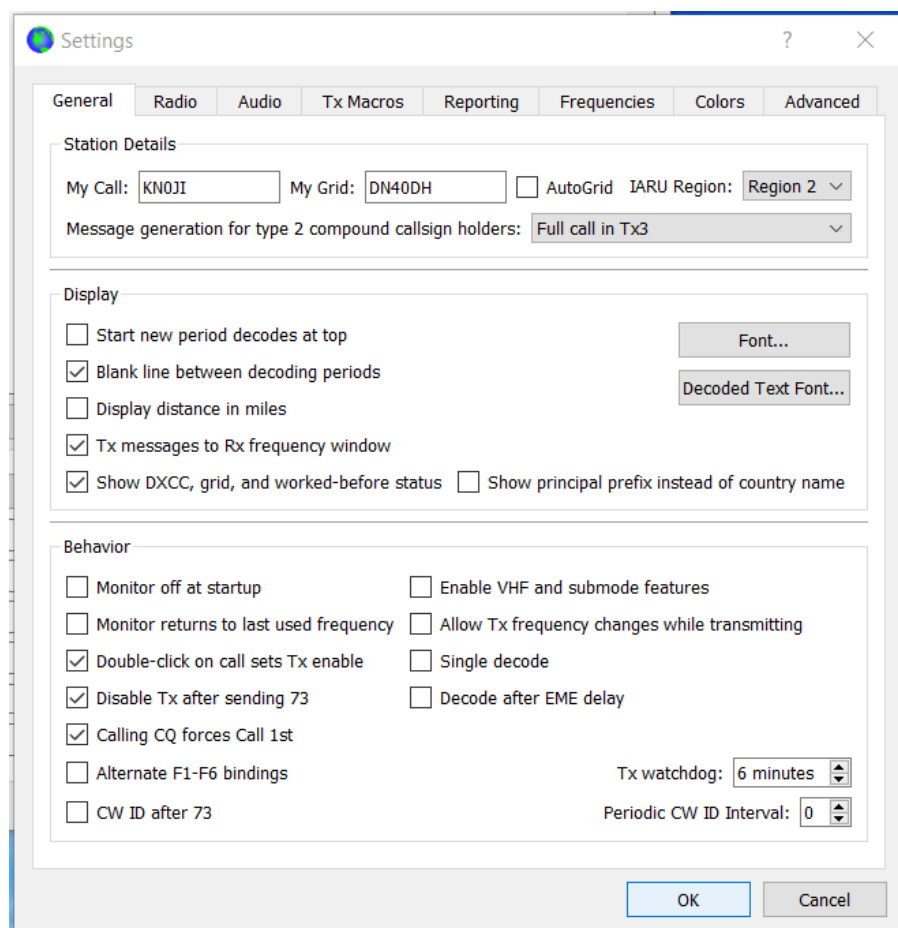
Download and install WSJT-X for Windows from [the WSJT-X website](#) onto your computer. (The page also contains the installation files for Linux and Mac.) [Here is the online manual](#).

Open the WSJT-X software and click **File**, then **Settings...**, then click the **General** tab. Enter or select the following settings:

- ✧ **My Call:** KNØJI (your call sign)
- ✧ **My Grid:** DN4ØDH (your six-character grid...[click here to find yours](#))
- ✧ **IARU Region:** Region 2

In the **Display** and **Behavior** groups, you can leave the settings at default, or check these for now, then modify them later, as you become familiar with the software:

- ✧ **Blank line between decoding periods**
- ✧ **Tx messages to Rx frequency window**
- ✧ **Show DXCC, grid, and worked-before status**
- ✧ **Double-click on call sets Tx enable**
- ✧ **Disable Tx after sending 73**
- ✧ **Calling CQ forces Call 1st**

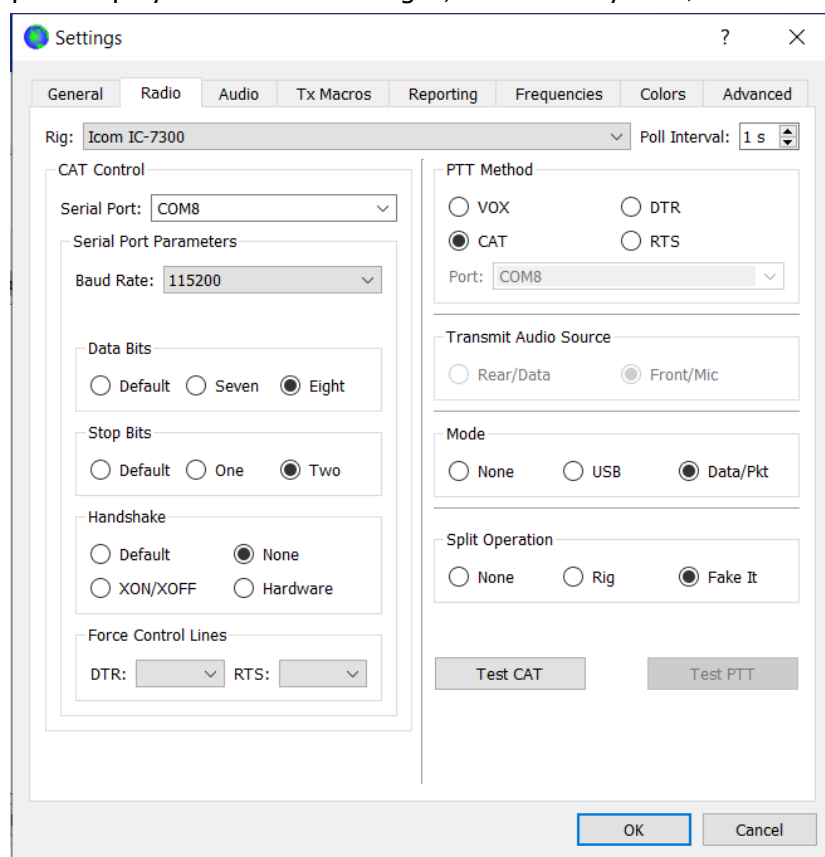


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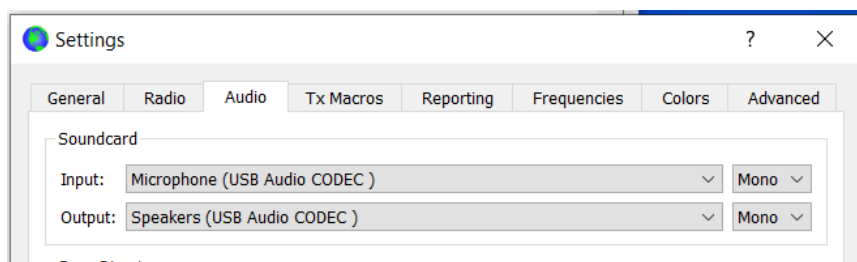
Click the **Radio** tab and set the following:

- **Rig:** Icom IC-7300
- **Serial Port:** (select the COM port displayed in Device Manager, **COM8** in my case)
- **Baud Rate:** 115200
- **Data Bits = Eight**
- **Stop Bits = Two**
- **Handshake = None**
- **PTT Method = CAT**
- **Mode = Data/Pkt**
- **Split Operation = Fake It**



Click the **Audio** tab and select the following:

- **Input:** Microphone (USB Audio CODEC)
- **Output:** Speakers (USB Audio CODEC)





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Go back to the **Radio** tab and click the **Test CAT** button. If the button turns green, you've set up everything successfully. If it doesn't, or an error message is displayed, try going back and ensuring the settings are as you see listed here. Click the **Test PTT** button, and the transceiver will go into a test transmit. Click **OK** to save your settings and exit the **Settings** window.

On your computer, open the **Control Panel**, click **Sound**, then click the **Recording** tab. Click the microphone associated with the USB Audio CODEC, then click **Properties**. Click the **Levels** tab and ensure the slider is between **40** and **70**, then click **OK** to exit.

Open your browser and download and install [NetTime](#) to ensure that your computer time is synchronized with internet time, important to the software.

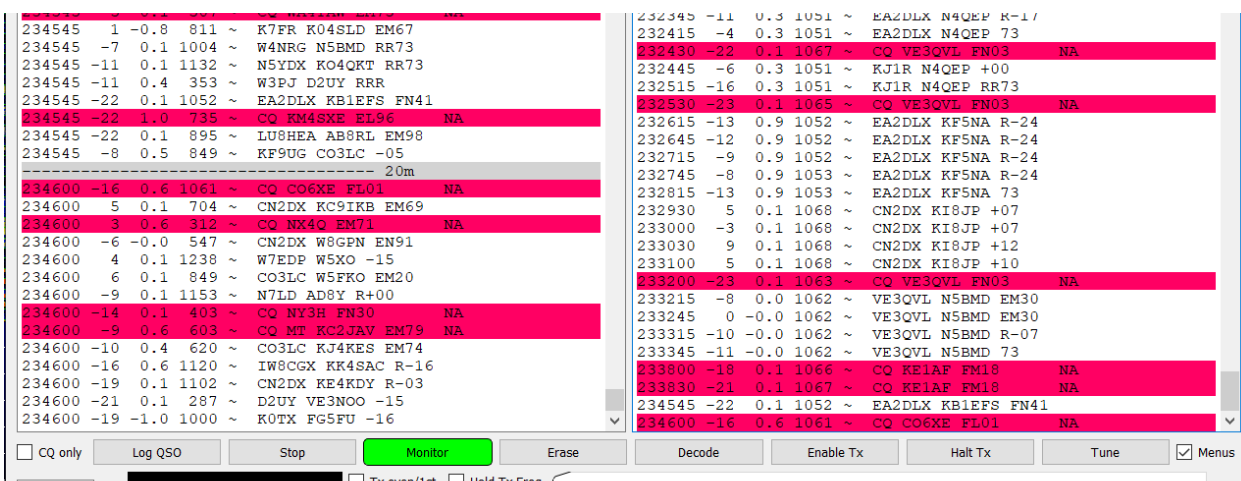
Making contacts

Open WSJT-X and connect with your transceiver. Click the **Mode** tab and select **FT8**. On your IC-7300, select one of the following:

- | | |
|-------------------------------|-------------------------------|
| 3.573 MHz (80 meters) | 21.074 MHz (15 meters) |
| 7.074 MHz (40 meters) | 28.074 MHz (10 meters) |
| 10.136 MHz (30 meters) | 50.313 MHz (6 meters) |
| 14.074 MHz (20 meters) | 144.174 MHz (2 meters) |

Once the WSJT-X window is up, it'll display a graphical waterfall window and a dialog window. The dialog window is split into the left ("Band Activity") box and the right ("Rx Frequency") box. The left box displays everything that FT8 picks up ("decodes"), while the right box shows those near your target frequency and those that include your call sign.

By the way, although the graphic waterfall window is fun and informative, it's not necessary to the initial setup of FT8, and so is not covered here, but is useful for knowing where to start transmitting. Also, there are many useful and shortcut settings (colors, logging, frequencies, etc.) in WSJT-X that I haven't covered here.

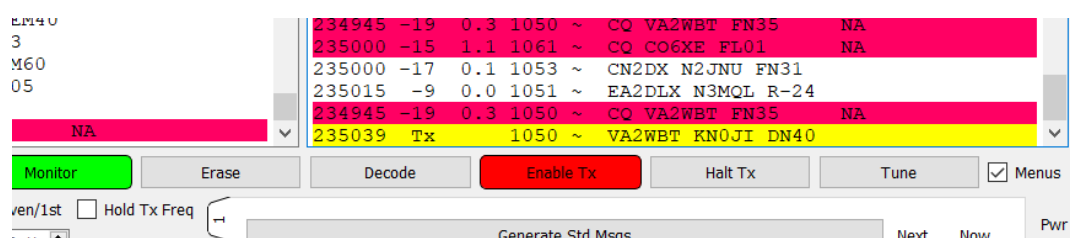


WSJT-X showing several stations throwing out CQs

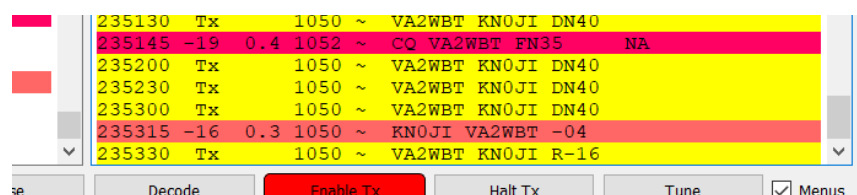
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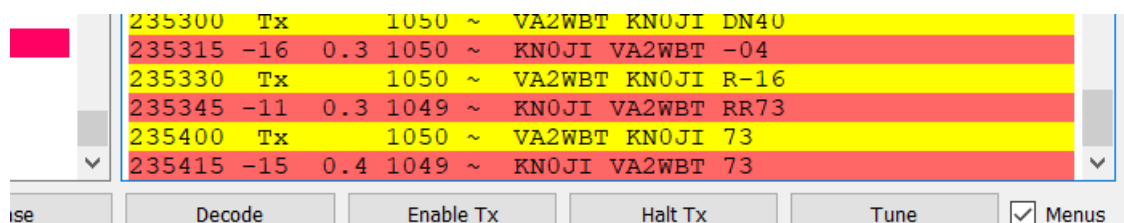
When you see somebody calling CQ in the left box, double-click on that CQ line. The software will make repeated attempts (displayed in the right box) to answer the CQ via your transceiver by populating the list of **standard messages**, then sending the standard messages in the order listed. Upon receiving the “73” message from the other station, the software will stop making the contact attempts, send its own “73” message, and you’ve just completed a contact:



I double-clicked the CQ by VA2WBT in the left box; my attempt appears in the right box



VA2WBT finally acknowledged my reply to his CQ!



After exchanging signal reports, we send 73 to each other, and the QSO is over

When you want to change bands, simply tap the numeral to the left of the decimal point on the IC-7300 screen, then select the new band. The software will automatically switch to the new band. When you’re ready to quit FT8, click the **Stop** button on the WSJT-X dialogue window, tap the **USB-D** button on the IC-7300 screen, then the **DATA** button on the screen. Tap the numeral to the left of the decimal point again, and the band again, to return to a voice mode. To restart FT8, simply click the **Mode** tab in the software, then **FT8**.

Another fun and useful app you can install as an add-on to WSJT-X is [JT Alert](#). It’s quite useful, presents many logging options, and can audibly alert you to a potential contact. You can set the software to alert you to a CQ from countries, prefixes, continents, grids, states, and even call signs with which you might have been wanting to make a contact.

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